

Theses Awarded

S.B.

- **Gaurab Das** (A. CHANDRAKASAN)
Minor in Mathematics

S.M.

- **Mohith Manohara** (A. CHANDRAKASAN)
A Power Efficient Analog Front End for Continuous Ultrasound Imaging of the Bladder
- **Andres Garcia Coletto** (J. NOTAROS)
Integrated Visible-Light Liquid-Crystal-Based Modulators and Grating-Based Antennas
- **Patrick Darmawi-Iskander** (T. PALACIOS)
Highly Scaled p-GaN-gate HEMTs for Low Voltage Power Electronics
- **Daniel DeSantis** (J. NOTAROS)
Spatially-Adaptive LiDAR and Underwater Communications Using Integrated Optical Phased Arrays
- **Hannah Gold** (S. V. BORISKINA)
Genetic Algorithm Gradient Ascent (GAGA) Optimization of Compact Symmetry-breaking Photonic Crystals
- **Ayush Gupta** (T. PALACIOS)
Dipole Contact Engineering for Field-Effect Transistors Based on Two-Dimensional Materials
- **Zhiping He** (L. LIU)
Magnetic Weyl Semimetals for Spintronic Applications
- **Amy Huynh** (S. V. BORISKINA)
Sustainable Engineering of Polyethylene Fiber Materials: Advancing Functional Properties of Diverse Textile-Based Structures
- **Yixuan Jiao** (T. PALACIOS)
CMOS-Compatible Wafer-Scale Synthesis and Rapid Characterization of Two-Dimensional Transition Metal Dichalcogenides
- **Junghyun Kim** (W. OLIVER)
Design and Engineering of Protected Superconducting Qubits
- **Jungsoo Lee** (J. DEL ALAMO)
Analog On-chip Training and Inference with Non-volatile Memory Devices
- **Christian Lopez Angeles** (T. PALACIOS)
Highly Integrated Graphene-Based Sensing Platform for Structural Monitoring Applications
- **Abhishek Mukherjee** (S. V. BORISKINA)
Optical Characterization of Strain and Defects in 2D Photonic Materials

- **Hridibrata Pal** (T. PALACIOS)
High Al-content AlGaIn Transistors for RF applications
- **Aijia Yao** (T. PALACIOS)
Design-technology Co-optimization for Sub-2 nm Technology Node Based on 2D Materials

M. ENG

- **Eyan Forsythe** (V. SZE)
Architectural Effects on the Accuracy of Analog Neural Network Accelerators
- **Kailas Kahler** (V. SZE)
Hardware Acceleration for Gaussian Compression
- **Ezra Kang** (V. SZE)
Energy Efficient Real-time Operating Systems on Chip
- **Monica Liu** (H.-S. LEE)
Fully Differential Programmable Gain Chiplet for Integrated Data Acquisition Systems
- **Aklilu Aron** (S. CODAY)
Condensed Buck-Boost Switched Capacitor Converter for Efficient Voltage Distribution in Electrified Aircraft
- **Gaurab Das** (A. CHANDRAKASAN)
Vigilis: Leveraging Language Models for Fraud Detection in Mobile Communications and Financial Transactions
- **Raiphy Jerez** (S. CODAY)
Novel Topology for Capacitively Isolated Switched Capacitor Converter
- **Lejla Skelic** (A. CHANDRAKASAN)
CIRCUIT: A Benchmark for Circuit Interpretation and Reasoning Capabilities of LLMs
- **Jade Sund** (S. CODAY)
A Hybrid Switched-Capacitor Converter for Capacitive Wireless Power Transfer in Biomedical Applications

PH.D.

- **Soroush Araei** (N. REISKARIMIAN)
Reconfigurable and Interference-Tolerant Receivers for Next-Generation Wireless Systems
- **Maitreyi Ashok** (A. CHANDRAKASAN)
Integrated Hardware Security for Practical and Low Overhead Protections
- **Colin C. Eckhoff** (L. F. VELASQUEZ)
Development of Additively Manufactured Quadrupole Mass Filters for Low-Cost and High-Performance Applications

PH.D. (CONTINUED)

- **Gerardo Perez Goncalves** (C. L. DRENNAN)
Structural and Biochemical Investigation of a Multiprotein Complex between Human Ribonucleotide Reductase and a Protein-based Activity Regulator
- **Tushar Karnik** (J. HU)
Integration of Quantum Cascade Lasers with Photonic Circuits
- **Serin Lee** (F. ROSS)
In situ electron microscopy of nanomaterials dynamics in heterogenous phase environments
- **Yujun Lin** (S. HAN)
Advancing Deep Learning Efficiency: from Specialized Co-Design to Automated Generation
- **Owen Medieros** (K. BERGGREN)
Superconducting Nanowire Integrated Circuits for Scalable Cryogenic Memorys
- **John Niroula** (T. PALACIOS)
Thermally Hardened RF GaN HEMTs in Extreme Environments
- **Joshua Perozek** (T. PALACIOS)
Novel Structures for Scalable Vertical Gallium Nitride Power Devices
- **Jorge Cañada Pérez-Sala** (L. F. VELASQUEZ)
Additive Manufacturing of Electrical Machines and Electronic Devices
- **Cosmin Popescu** (J. HU)
Improving the Reliability of Optical Phase Change Materials-Based Devices
- **Luigi Ranno** (J. HU)
Scalable Packaging and Integration Solutions for Next-Generation Photonic Systems
- **Kate Reidy** (F. ROSS)
Atomic-scale Design at the 2D/3D Interface Using Electron Microscopy
- **David Rower** (W. OLIVER)
Exploring Anisotropic Noise and Fast Gates with Superconducting Qubits
- **Margaret Schroeder** (E. S. BOYDEN)
Postnatal Specialization of Astrocyte Regional Heterogeneity in the Mammalian Brain and Improved Tools for Studying Glia
- **John Simonaitis** (K. BERGGREN)
Low-energy Electron-Photon Interactions in a Scanning Electron Microscope
- **Corban Swain** (E. S. BOYDEN)
Technological Innovation and Integration of Whole Brain Imaging, Olfactory Stimulation, and Correlative Microscopy in Larval Zebrafish
- **Haotian Tang** (S. HAN)
Co-Designing Efficient Systems and Algorithms for Sparse and Quantized Deep Learning Computing
- **Deniz Umut Yildirim** (A. CHANDRAKASAN)
Wireless, Battery-Free, High-Sensitivity 5G RF Energy Harvesters for Next Generation IoT Sensor Tags
- **Kevin Ye** (R. JARAMILLO)
Chalcogenide Perovskite Thin Films for Photovoltaics
- **Arina Yu** (J. A. DEL ALAMO)
Characterization of pGaN-gate power HEMTs
- **Ruihan Zhang** (E. S. BOYDEN)
Mapping the Spatial Transcriptome Across Whole Organisms
- **Jiadi Zhu** (T. PALACIOS)
System-Technology Co-Optimization of Scaled Electronics Based on Two-Dimensional Materials
- **Weikun (Spencer) Zhu** (F. NIROUI)
Additive Integration from Nanomaterials to Devices